



# ***Public Information Workshops***

## ***Planned Willamette Reservoir Operations for 2002***

*April 23, 2002 - Eugene*

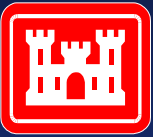
*April 24, 2002 - Sweet Home*

*April 25, 2002 - Salem and Detroit*



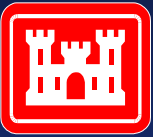
# ***Meeting Overview***

- ***Planned 2002 Operating Criteria***
- ***Current Reservoir Conditions***
- ***Hydrologic Forecast***
- ***Reservoir Elevations and Flow Forecasts***
- ***Update from Bonneville Power Administration***
- ***Answer questions/receive comments***



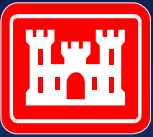
# ***Meeting Overview***

- ***Planned 2002 Operating Criteria***
- ***Current Reservoir Conditions***
- ***Hydrologic Forecast***
- ***Reservoir Elevations and Flow Forecasts***
- ***Update on the National Lakes Program***
- ***Answer questions/receive comments***



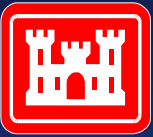
# ***Fern Ridge Lake Planned 2002 Operations***

- ***Fill the Reservoir by around May 1***
- ***Keep it as full as possible through the summer***
- ***Meet downstream minimum flow requirements and water supply contracts***
- ***Expect perhaps 2 feet of drawdown by September 15***



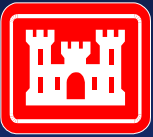
# ***Foster Lake Planned 2002 Operations***

- ***Drawdown for juvenile steelhead migration; April - May***
- ***Reservoir refill and clearing prior to Memorial Day weekend***
- ***Drawdown beginning October 1***



# ***Detroit Lake Planned 2002 Operations***

- ***Full Reservoir by May 10***
- ***Keep as full as possible through Labor Day weekend***
- ***Meet downstream flow requirements***
- ***Expect 5 to 7 feet of drawdown by end of summer***
- ***Begin drawdown in early September***



# ***The Willamette Reservoirs -- System Overview***

- ***System description***
- ***Authorized project purposes***
- ***Rule curves***
- ***Operating criteria during the  
conservation season (Feb - Oct)***
- ***Special Operations***



# ***Willamette Basin Project, Oregon***

13 Dams and Reservoirs

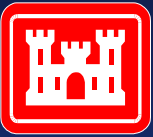
- 11 multiple-purpose
- 2 reregulating

Over 100 Miles of Bank  
Protection works

Navigation Channel,  
Mouth to Corvallis  
(135 miles)







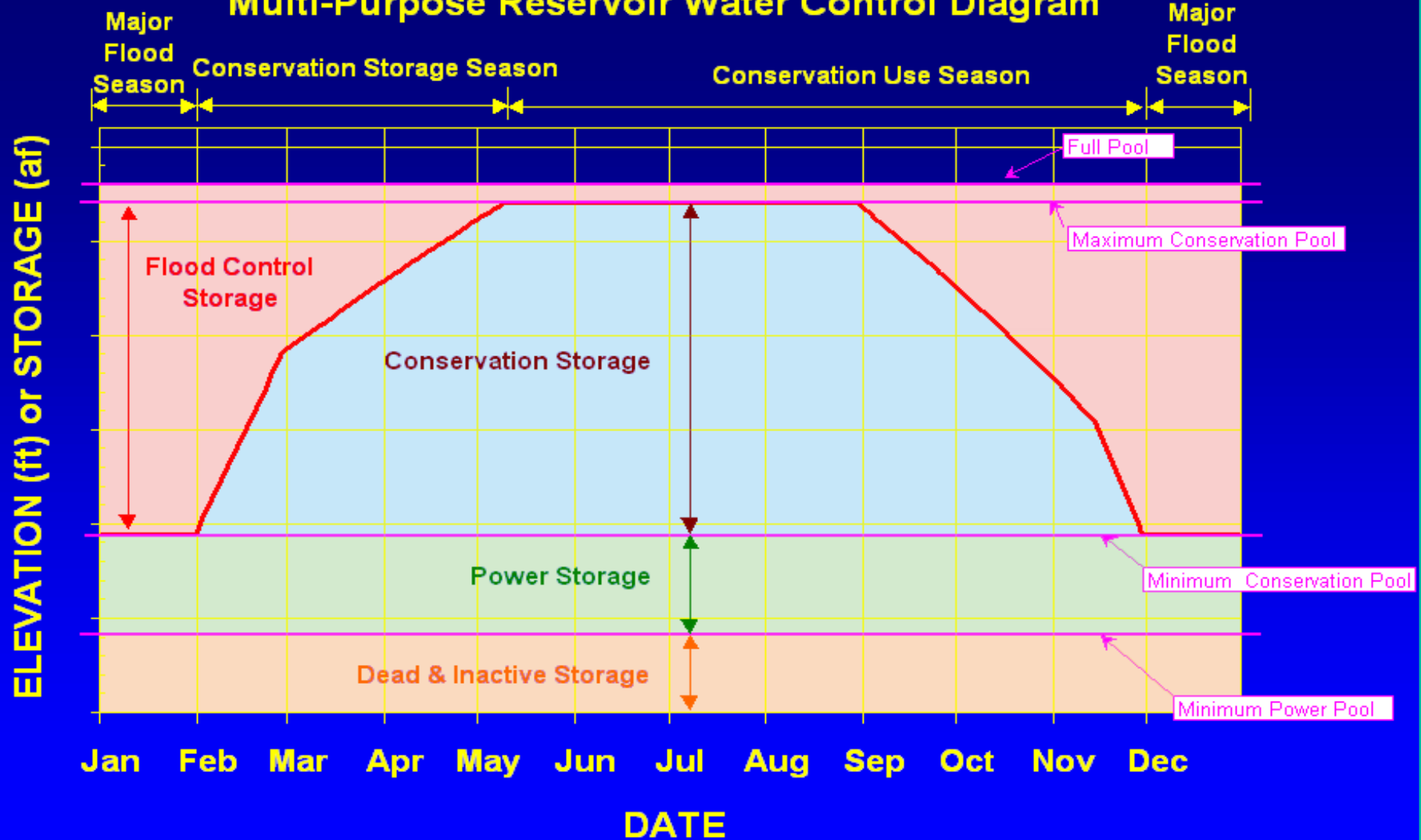
# *Authorized Purposes*

- *Flood Control*
- *Hydropower*
- *Navigation*
- *Irrigation*
- *Fish & Wildlife*
- *Recreation*
- *Water Quality*
- *Municipal & Industrial*





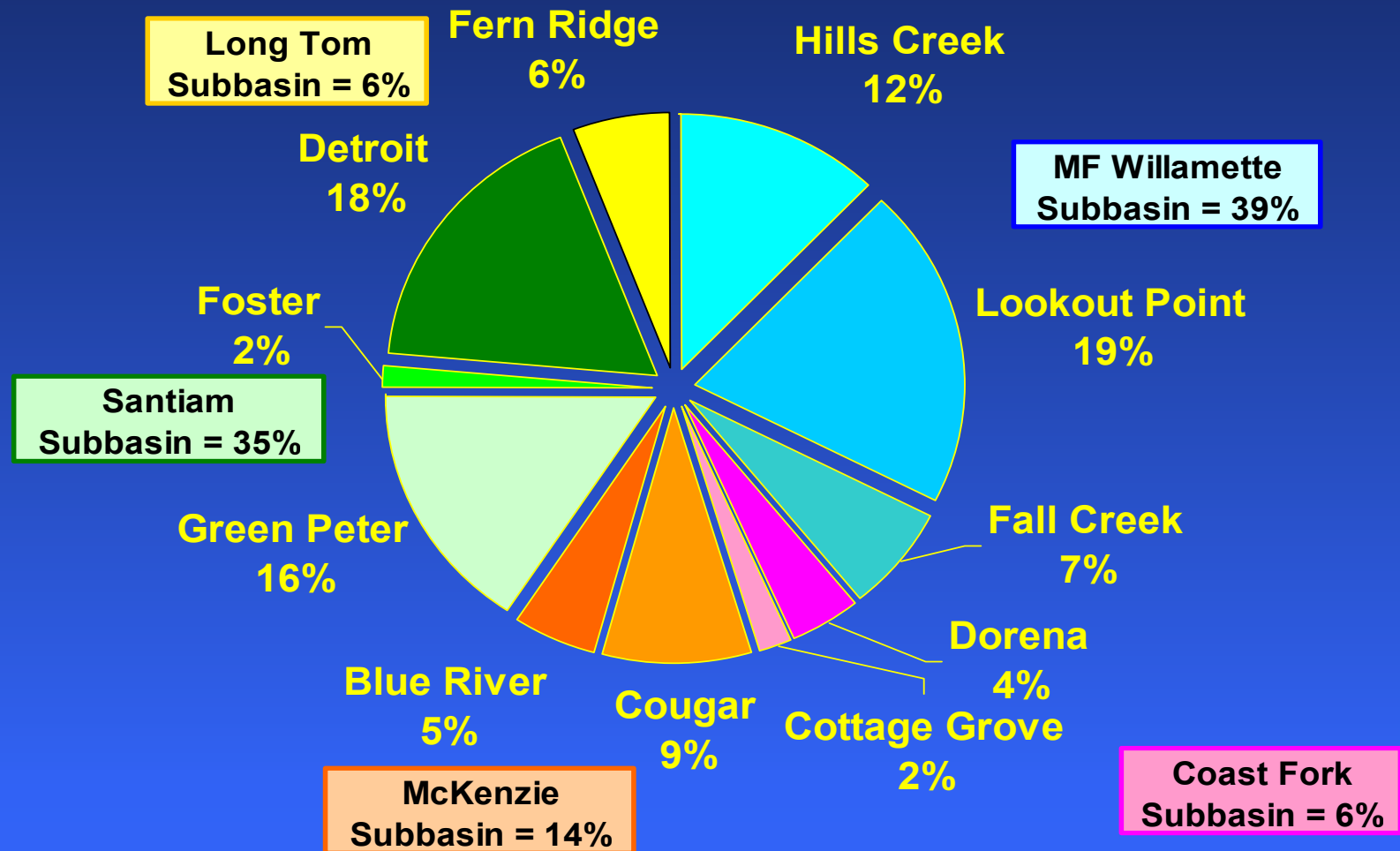
## Multi-Purpose Reservoir Water Control Diagram





# ***Willamette Conservation Storage***

***Total = 1.6 million Acre-feet***





# ***Willamette Reservoir Projects***

## ***Conservation Season Operating Criteria***

- ***Minimum Instream Flows***
- ***Spring Flow Augmentation; Apr - June***
- ***Mainstem Flow Augmentation; Jul - Oct***
- ***Water for Out-of-Stream Needs***
- ***Refill and Drawdown Priorities***
- ***Special Operations***



# ***Minimum Tributary Flows for Instream Water Rights, Fish, Water Quality & Recreation***

***(July - October)***

● Hills Creek	300 cfs	● Blue River	50 cfs
● Lookout Point	1,000 cfs	● Fern Ridge	30 cfs
● Fall Creek	30 cfs	● Green Peter	300 cfs
● Cottage Grove	50 cfs	● Foster	750 cfs
● Dorena	100 cfs	● Detroit	<u>900 cfs</u>
● Cougar	300 cfs*		

**Total** **3,810 cfs**

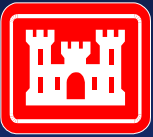
\* No storage in Cougar Lake during temperature control construction, 2002-2004. Project will pass inflow.



# ***Willamette Reservoir Projects***

## ***Conservation Season Operating Criteria***

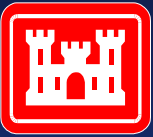
- ***Minimum Instream Flows***
- ***Spring Flow Augmentation; Apr - June***
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- ***Special Operations***



# ***Spring Fish Flow Augmentation***

<b><i>Period</i></b>	<b><i>Thresholds*</i></b>
<b><i>Apr 1 - Apr 15</i></b>	<b><i>20,500 cfs</i></b>
<b><i>Apr 16 - Apr 30</i></b>	<b><i>17,800 cfs</i></b>
<b><i>May 1 - May 31</i></b>	<b><i>15,000 cfs</i></b>
<b><i>June 1 - June 15</i></b>	<b><i>13,000 cfs</i></b>
<b><i>June 16 - June 30</i></b>	<b><i>8,700 cfs</i></b>

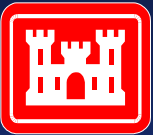
***\* Weekly Average flows; may be scaled back  
during dry years***



# ***Spring Flow Augmentation Targets***

- ***Supports juvenile steelhead and adult chinook migration***
- ***Studies by ODFW show increased survival under higher spring flows***
- ***Requested by National Marine Fisheries Service in their Draft Biological Opinion***





# ***Willamette Reservoir Projects***

## ***Conservation Season Operating Criteria***

- ***Minimum Instream Flows***
- ***Spring Flow Augmentation; Apr - June***
- ***Mainstem Flow Augmentation; Jul -Oct***
- ***Water for Out-of-Stream Needs***
- ***Refill and Drawdown Priorities***
- ***Special Operations***



# ***Mainstem Flow Augmentation for Fish Habitat & Water Quality***

***(July - October)***

- ***Albany - 5,000 cubic feet per second (cfs)***
- ***Salem - 6,500 cfs***



# ***Willamette Reservoir Projects***

## ***Conservation Season Operating Criteria***

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- ***Water for Out-of-Stream Needs***
- ***Refill and Drawdown Priorities***
- ***Special Operations***



# ***Out-of-Stream Uses of Stored Water***

- *60,000 Acre Feet for Irrigation*
- *Most comes out of Fern Ridge Lake for farms along the Long Tom River*
- *Currently no municipal and industrial use*



# ***Willamette Reservoir Projects***

## ***Conservation Season Operating Criteria***

- ***Minimum Instream Flows***
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- ***Water for Out-of-Stream Needs***
- ***Drawdown Priorities***
- ***Special Operations***



# ***Reservoir Drawdown Priorities (April -October)***

- |                |   |
|----------------|---|
| <i>First:</i>  | Lookout Point                                     |
| <i>Second:</i> | Cougar*   |
| <i>Third:</i>  | Hills Creek                                       |
| <i>Fourth:</i> | Blue River  |
| <i>Fifth:</i>  | Fall Creek, Cottage Grove,<br>Dorena, Green Peter |
| <i>Last:</i>   | Fern Ridge, Foster, Detroit                       |

\*No storage in Cougar Reservoir from 2002 – 2004; Drawdown began in April 2002



# ***Willamette Reservoir Projects***

## ***Conservation Season Operating Criteria***

- ***Minimum Instream Flows***
- ***Spring Flow Augmentation; Apr - June***
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- ***Water for Out-of-Stream Needs***
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- ***Special Operations***



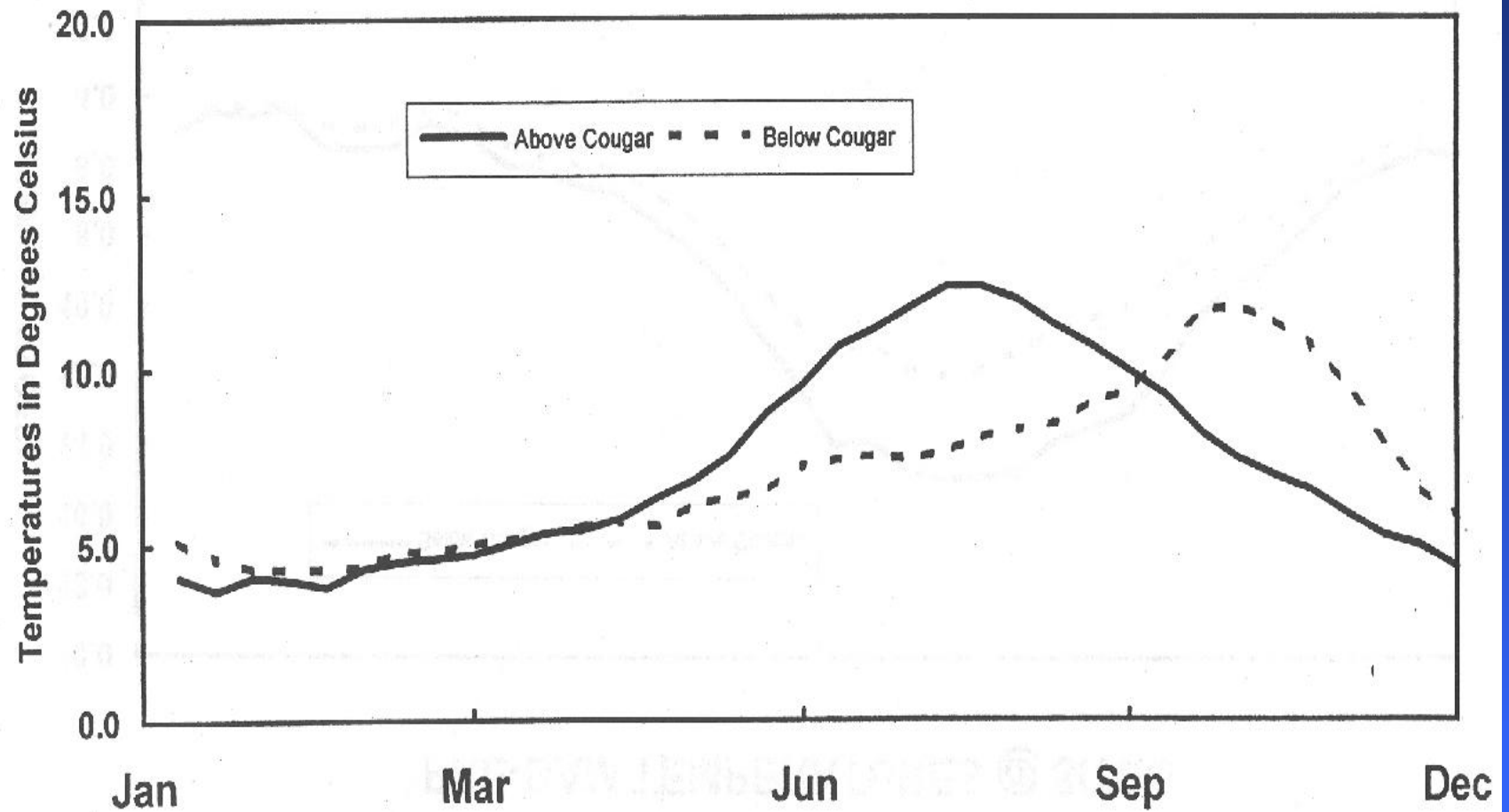
# ***Special Operations in 2002***

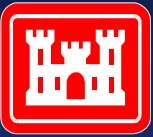
- ***Cougar Temperature Control Project***
- ***Lookout Point Operations for Oregon chub***





## EXISTING TEMPERATURES @ SITES





# ***McKenzie River Temperature Control Project***

- ***Project Objective***

- *Re-establish pre-dam water temperatures downstream to benefit aquatic ecosystem function*

- ***Project Approach***

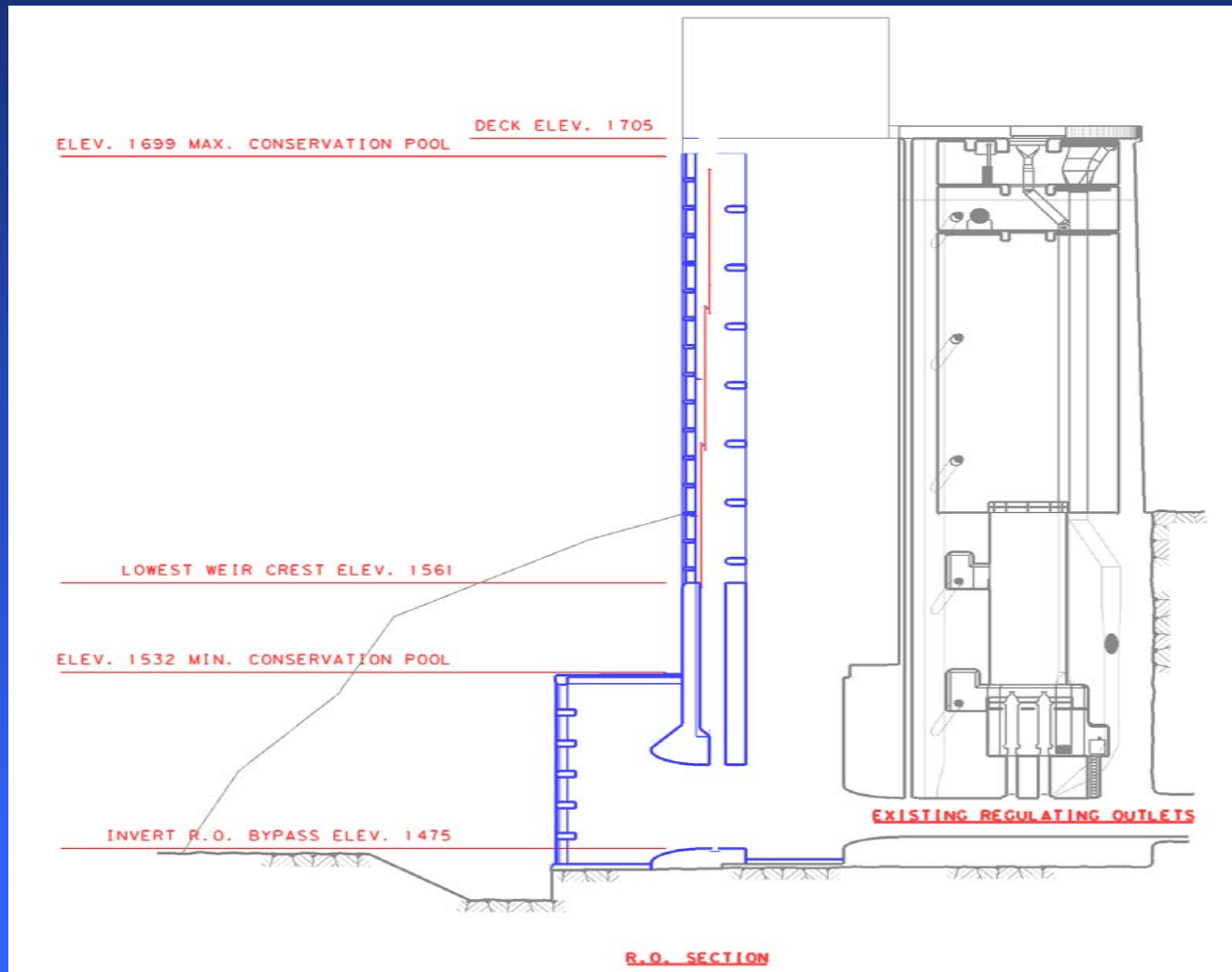
- *Construct towers to allow selective withdrawal of water from Cougar and Blue River reservoirs*

- ***Current Status***

- *Cougar project selective withdrawal tower under construction 2002-2004*



# Cougar Temperature Control Project





# ***Lookout Point -- Oregon Chub Special Operations in 2000 and 2001***

- ***Objective:***

- ✓ *Hold Lookout Point Lake at full pool through 15 June*

- ***Purpose:***

- ✓ *Protect Oregon Chub spawning habitat in small protected embayments around the lake margin*

- ***Impact:***

- ✓ *Shifts drawdown priorities for meeting downstream flow targets to other reservoirs*



# ***Lookout Point -- No Special Oregon Chub Operations in 2002***

- ***Objective:***

- ✓ *Modify Hospital Pond habitat to hydrologically separate it from Lookout Point Lake*

- ***Purpose:***

- ✓ *Return to normal operation using Lookout Point as first priority to meet mainstem flow requirements*

- ***Impact:***

- ✓ *Allows more flexibility in keeping the other reservoirs full longer into the summer*

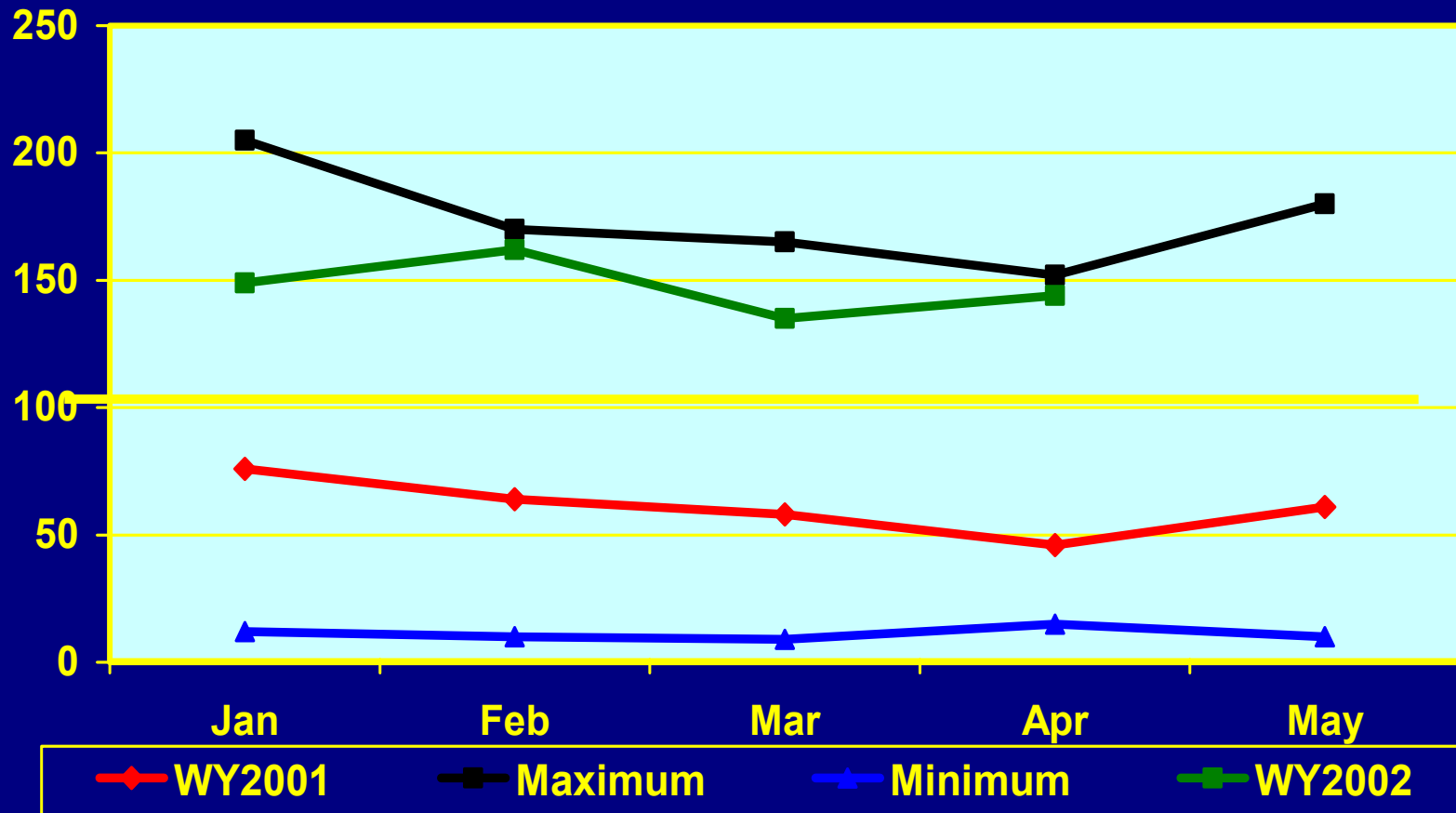


# ***Current Hydrologic Conditions***



# *Current Hydrologic Conditions*

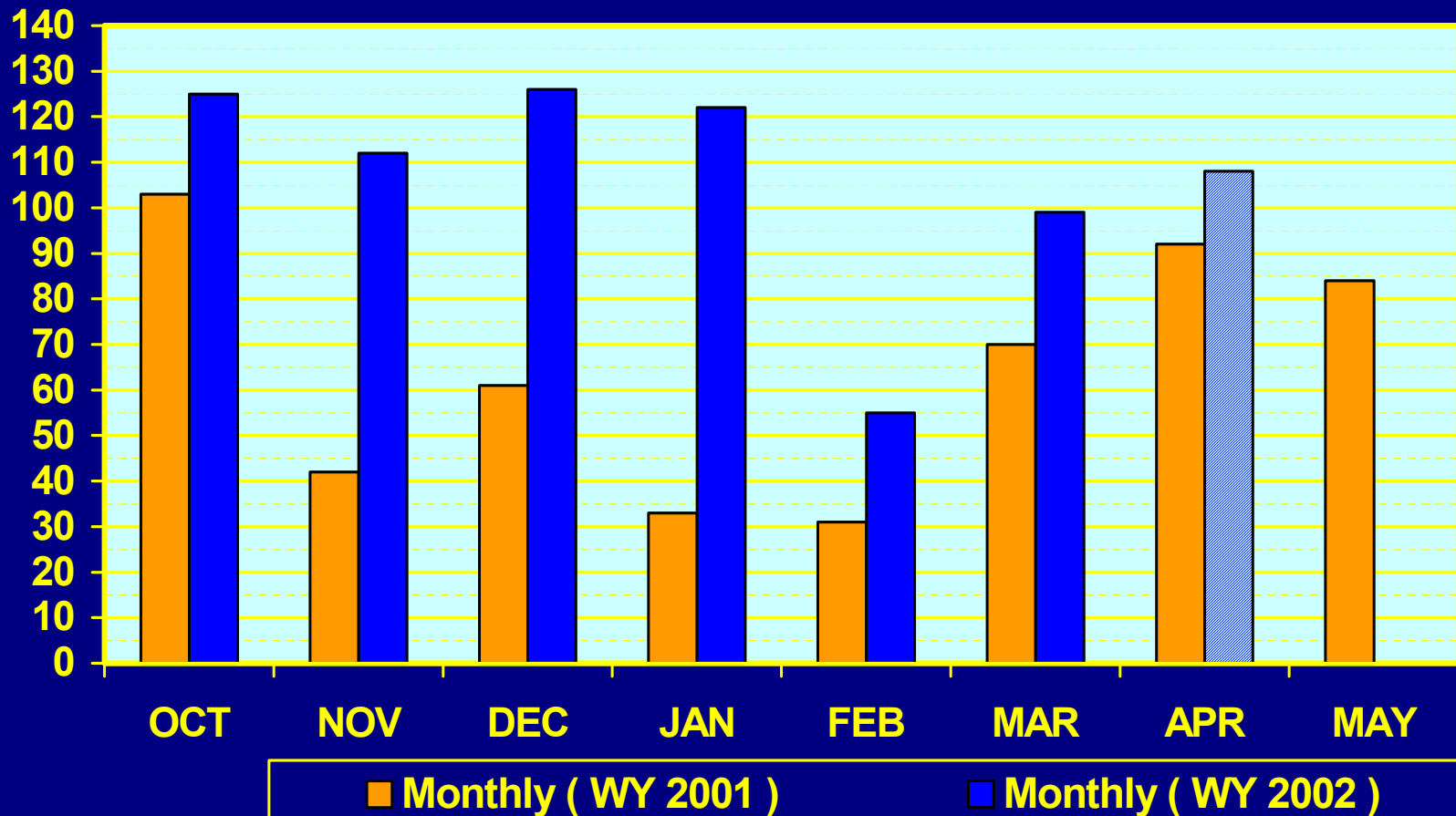
**NRCS/NWS Reported Snowpack  
(Percent Of Normal)**





# *Willamette Valley Precip. - WY 2001 & 2002*

## **NRCS/NWS Reported Precipitation ( Percent of Normal - for Valley )**







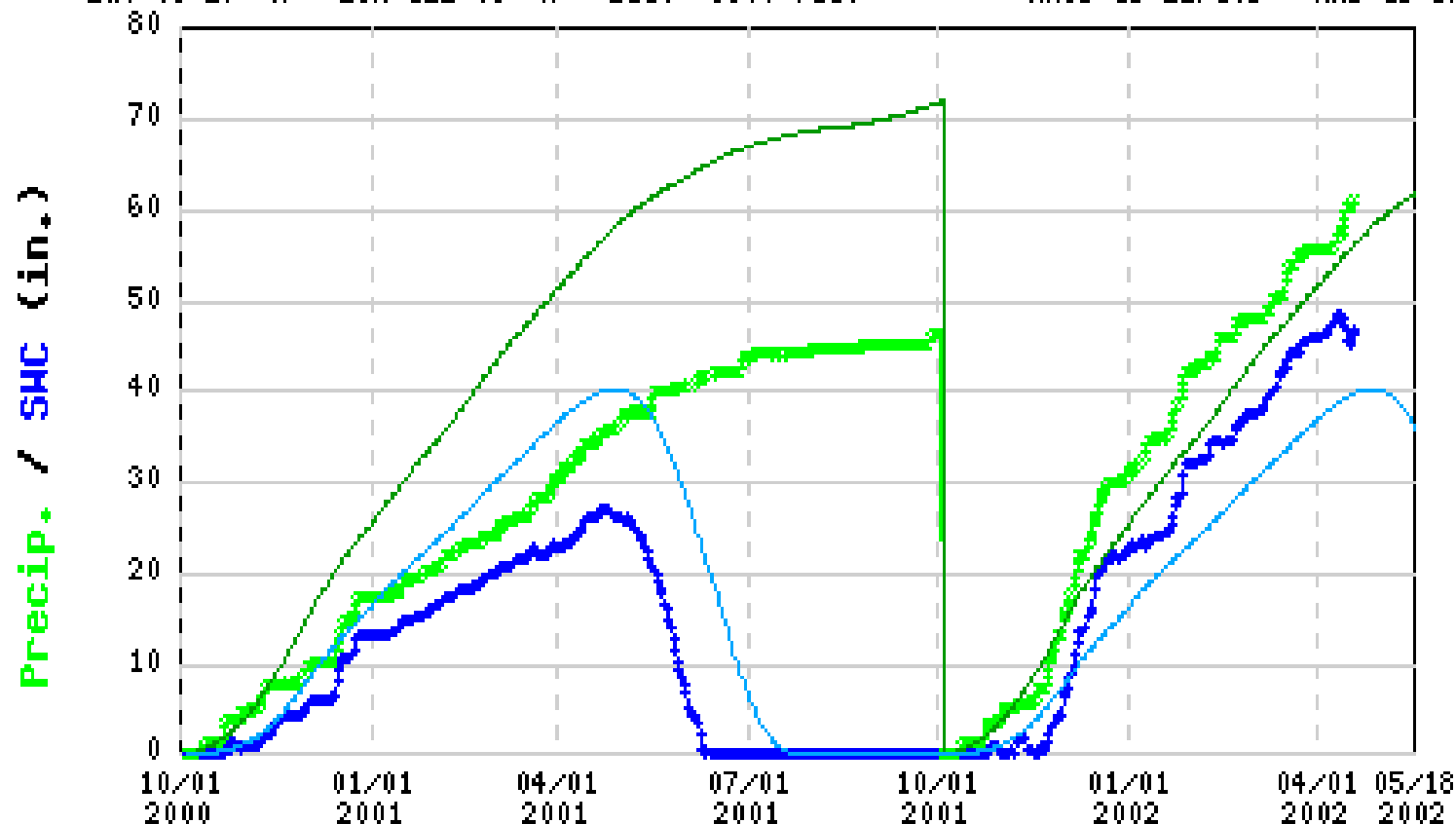
# NRCS Snotel Data W Y 2001 to Present

## Summit Lake, OR Snotel Site

Lat 43 27' N Lon 122 08' W Elev 5600 feet

NRCS ID 22F145

NWS ID SML03



Provisional  
data  
provided by  
USDA/NRCS

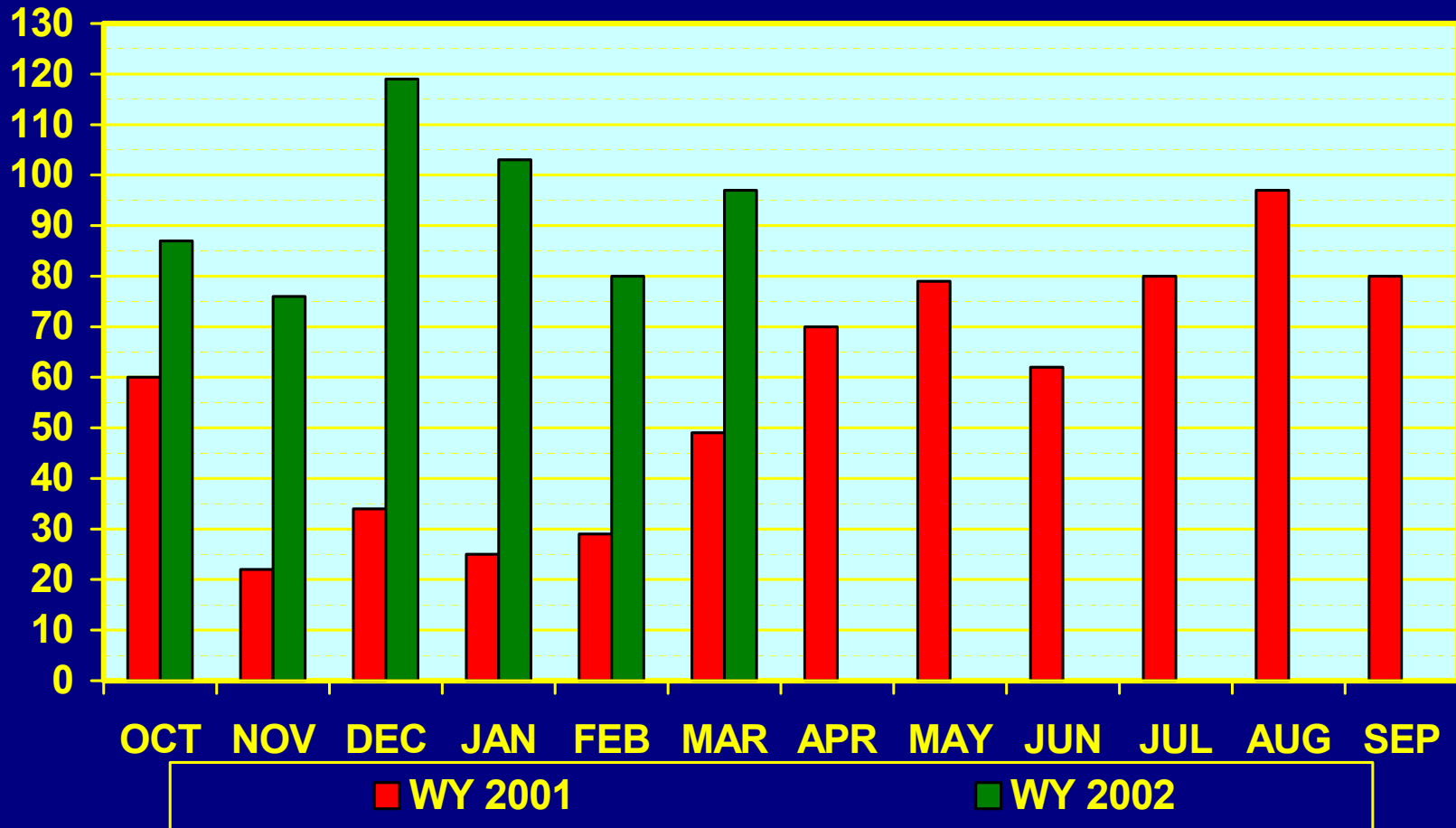
x Acc. Precipitation + Snow Water Content

Western  
Regional  
Climate  
Center



# ***NWS - Un-regulated Volume Runoff (Salem)***

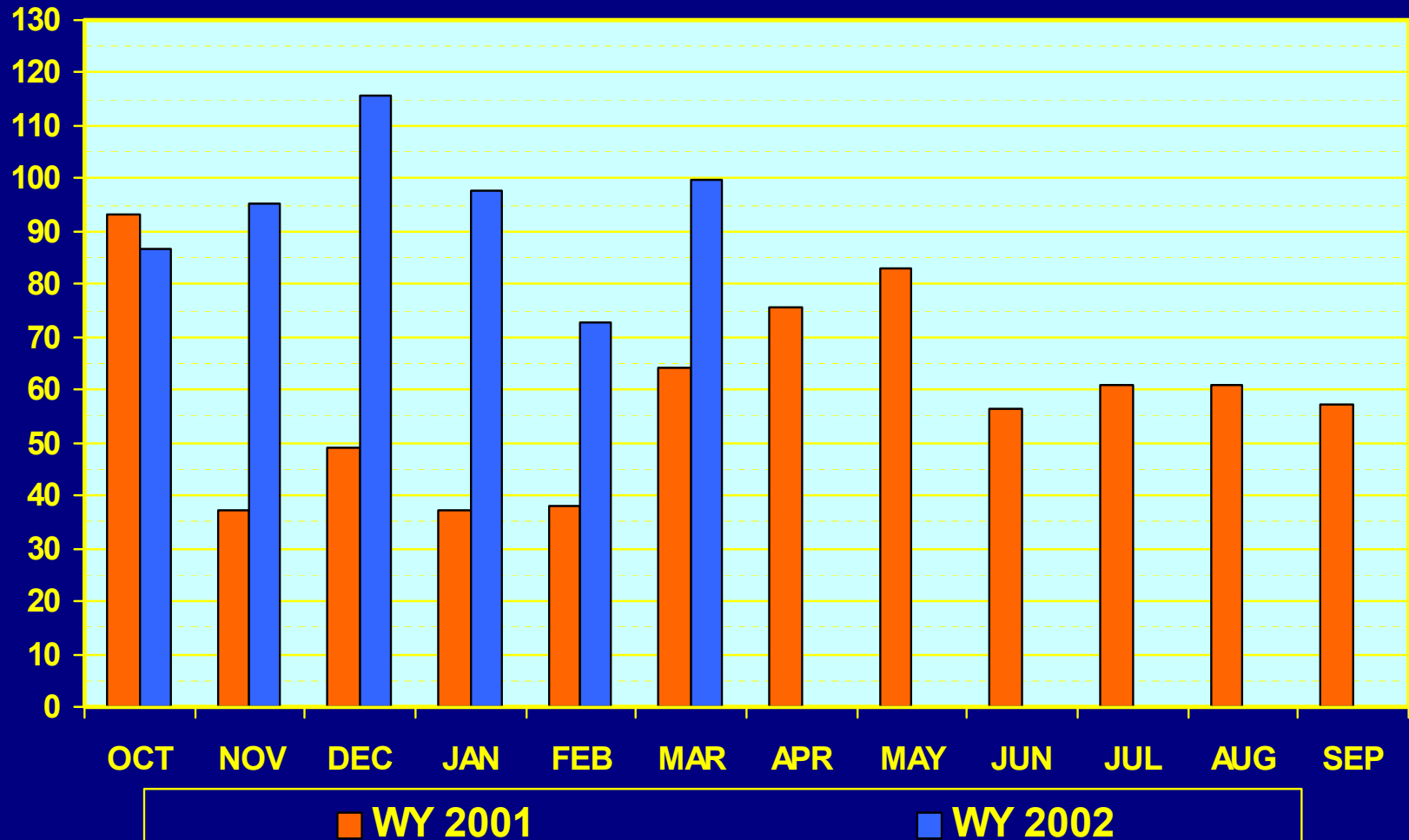
**( Percent of Normal - for Month )**





# ***NWS – Un-regulated Vol. Runoff (Mehama)***

**(Percent of Normal - for Month)**

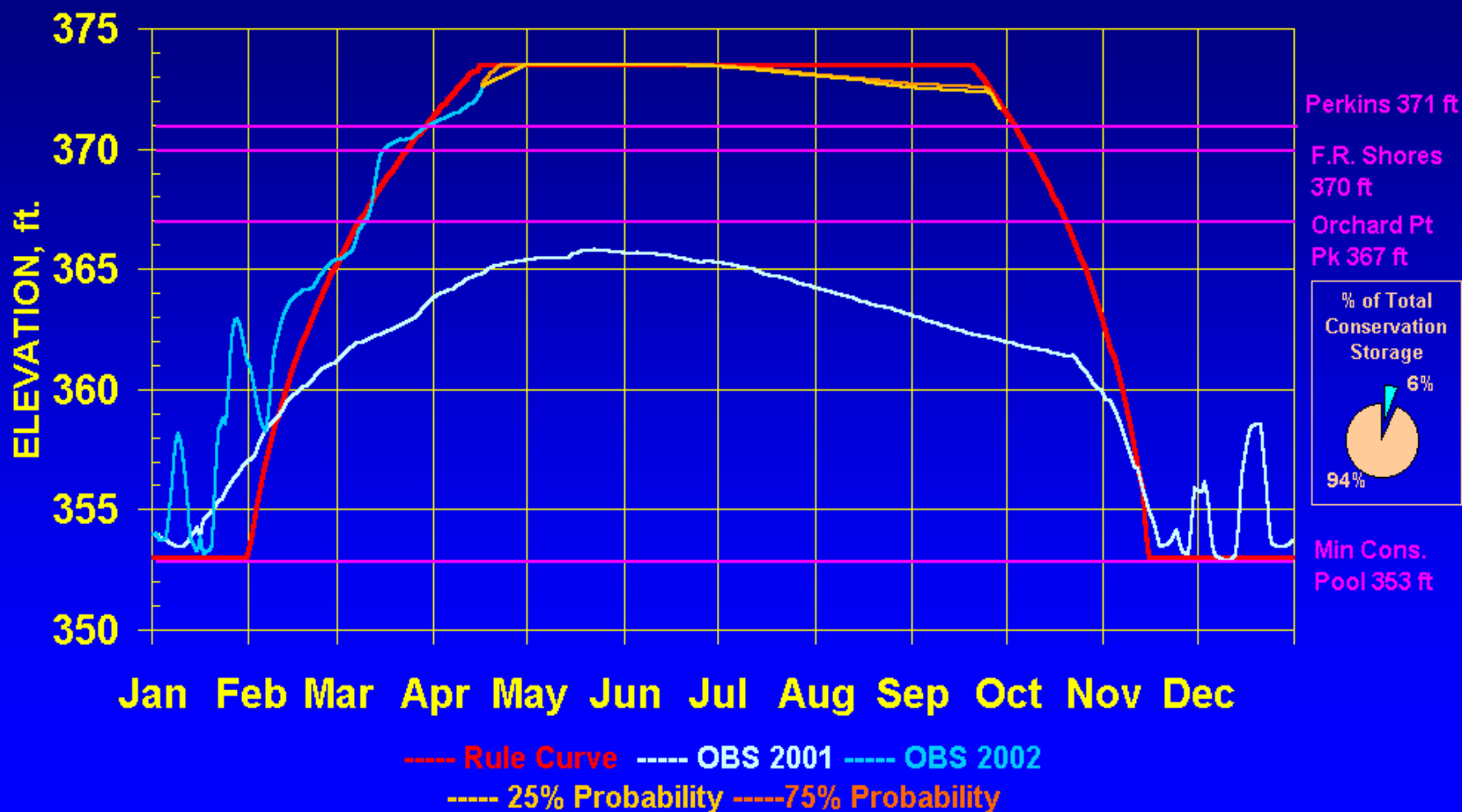


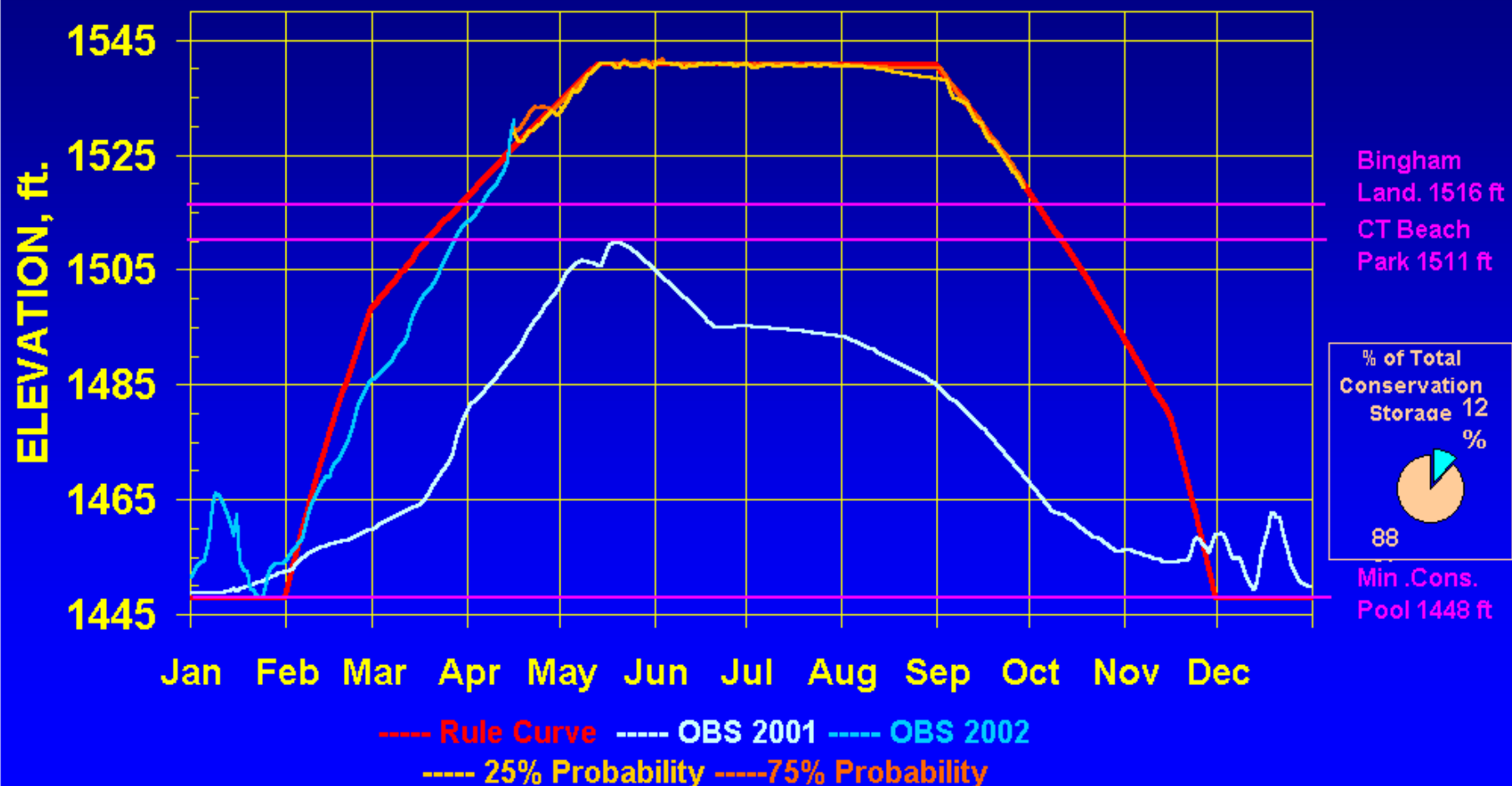


# ***Reservoir and Flow Forecasts for 2002***



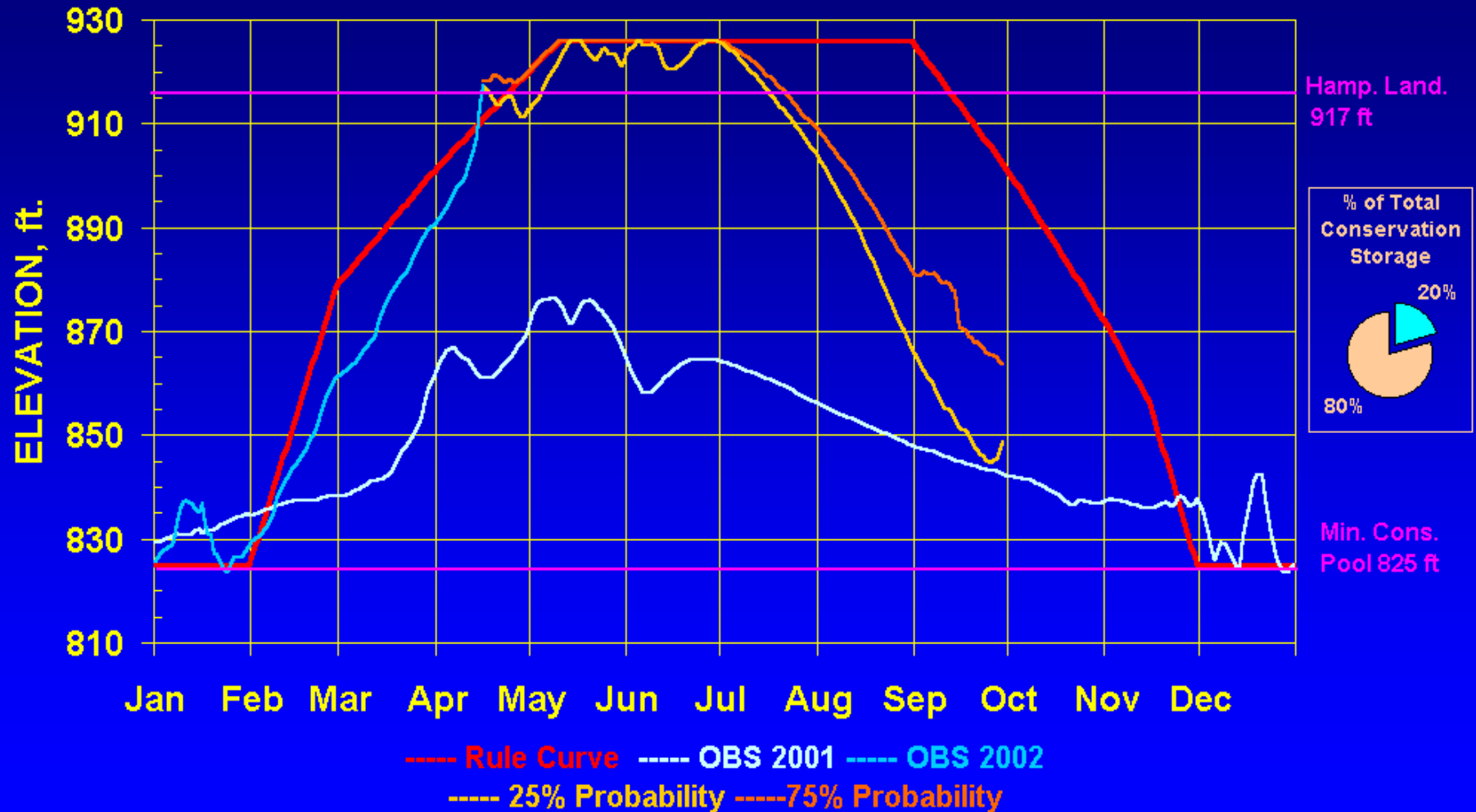
## FERN RIDGE Lake Elevation Forecast Summary for 2002





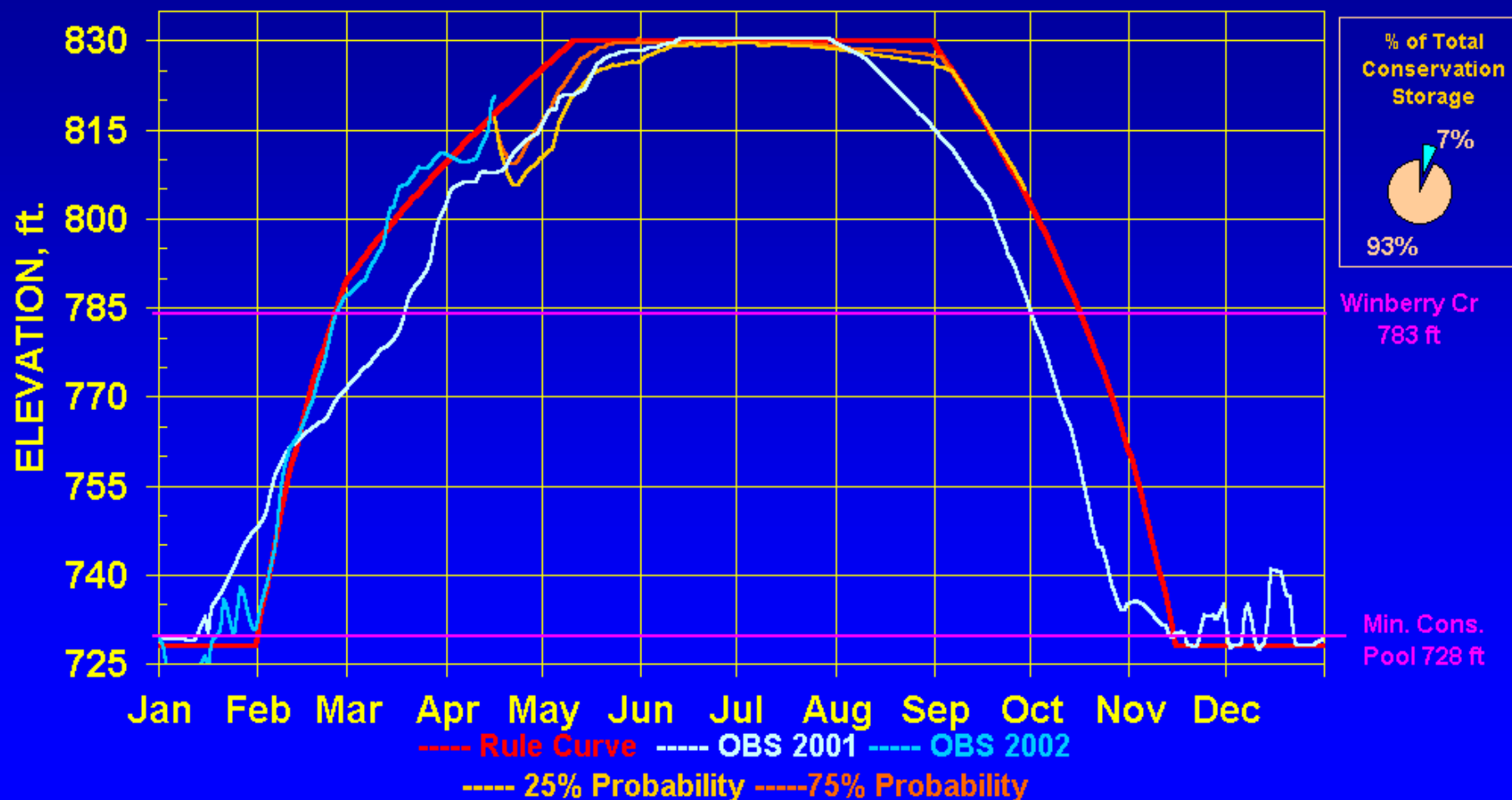


## LOOKOUT POINT Lake Elevation Forecast Summary for 2002





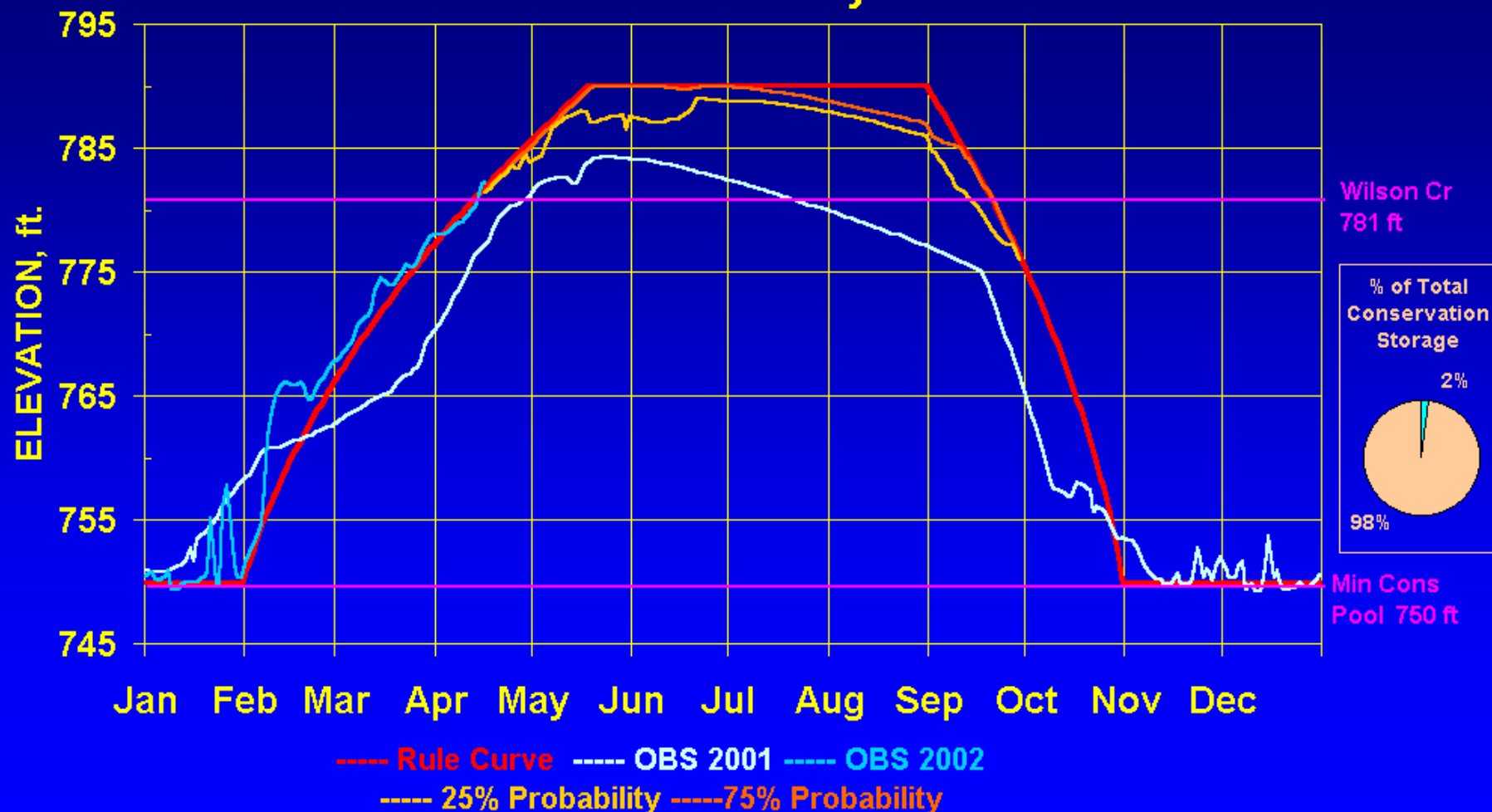
## FALL CREEK Lake Elevation Forecast Summary for 2002





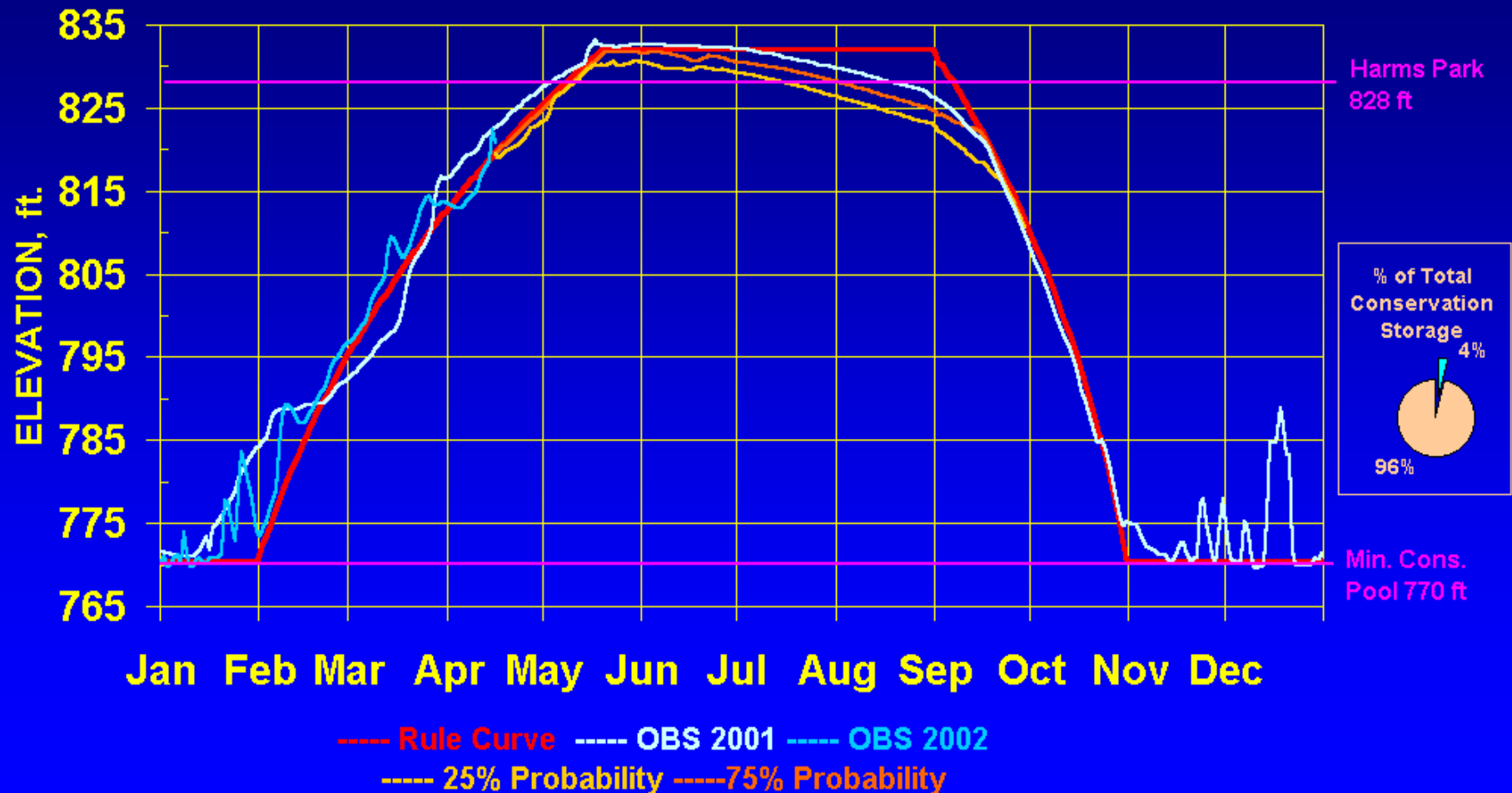


## COTTAGE GROVE Lake Elevation Forecast Summary for 2002



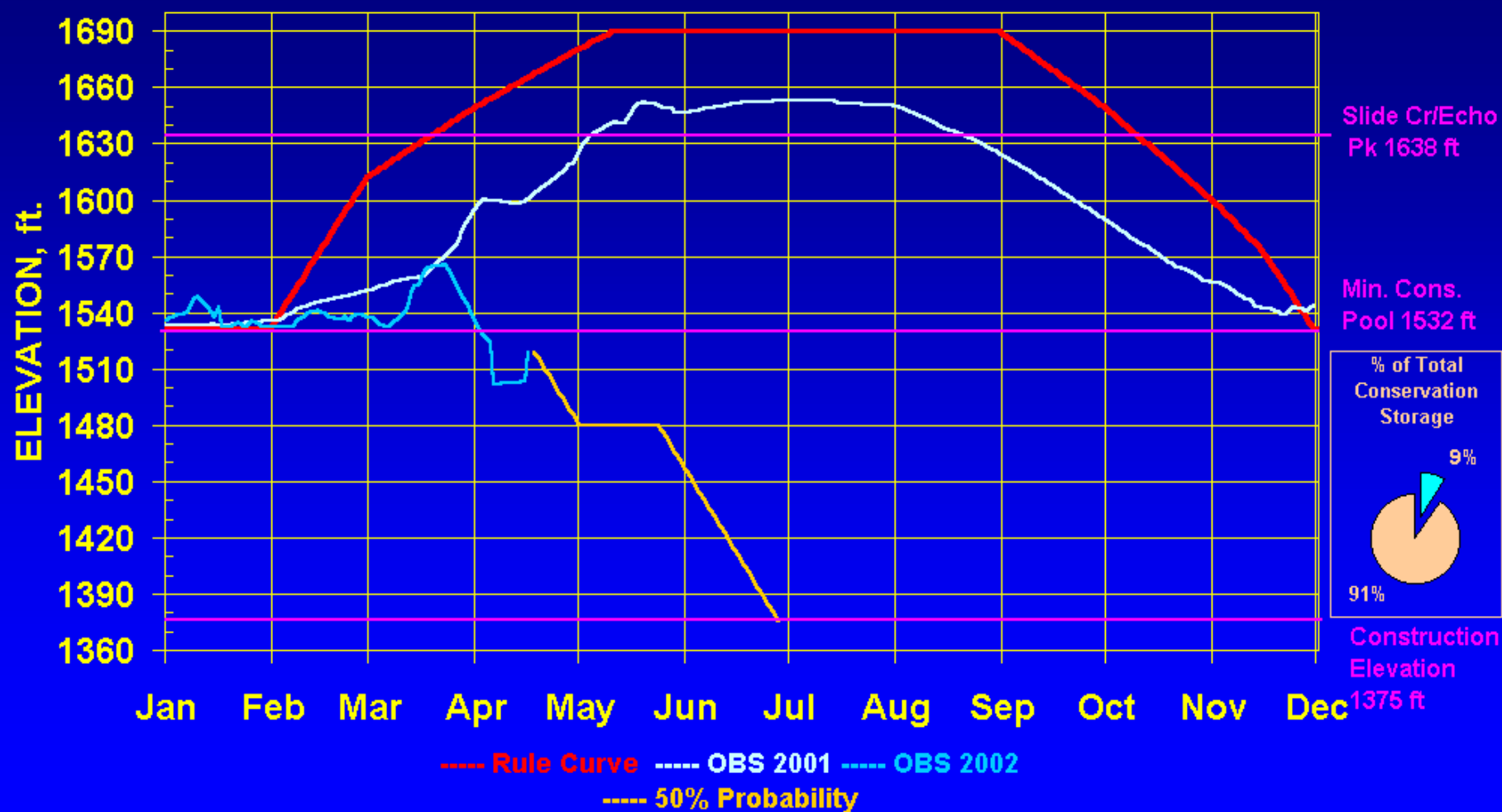


## DORENA Lake Elevation Forecast Summary for 2002



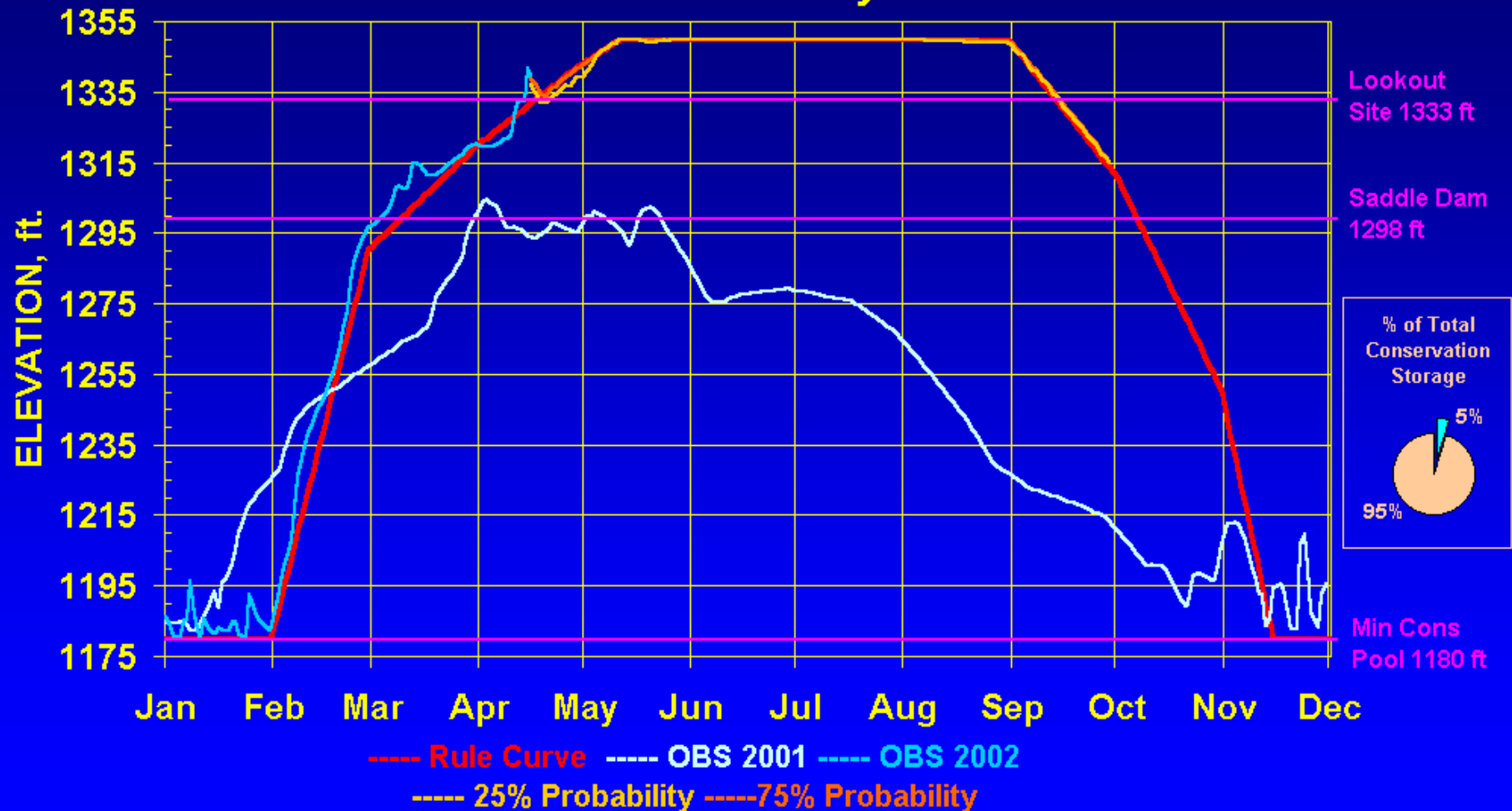


## COUGAR Lake Elevation Forecast Summary for 2002





## BLUE RIVER Lake Elevation Forecast Summary for 2002



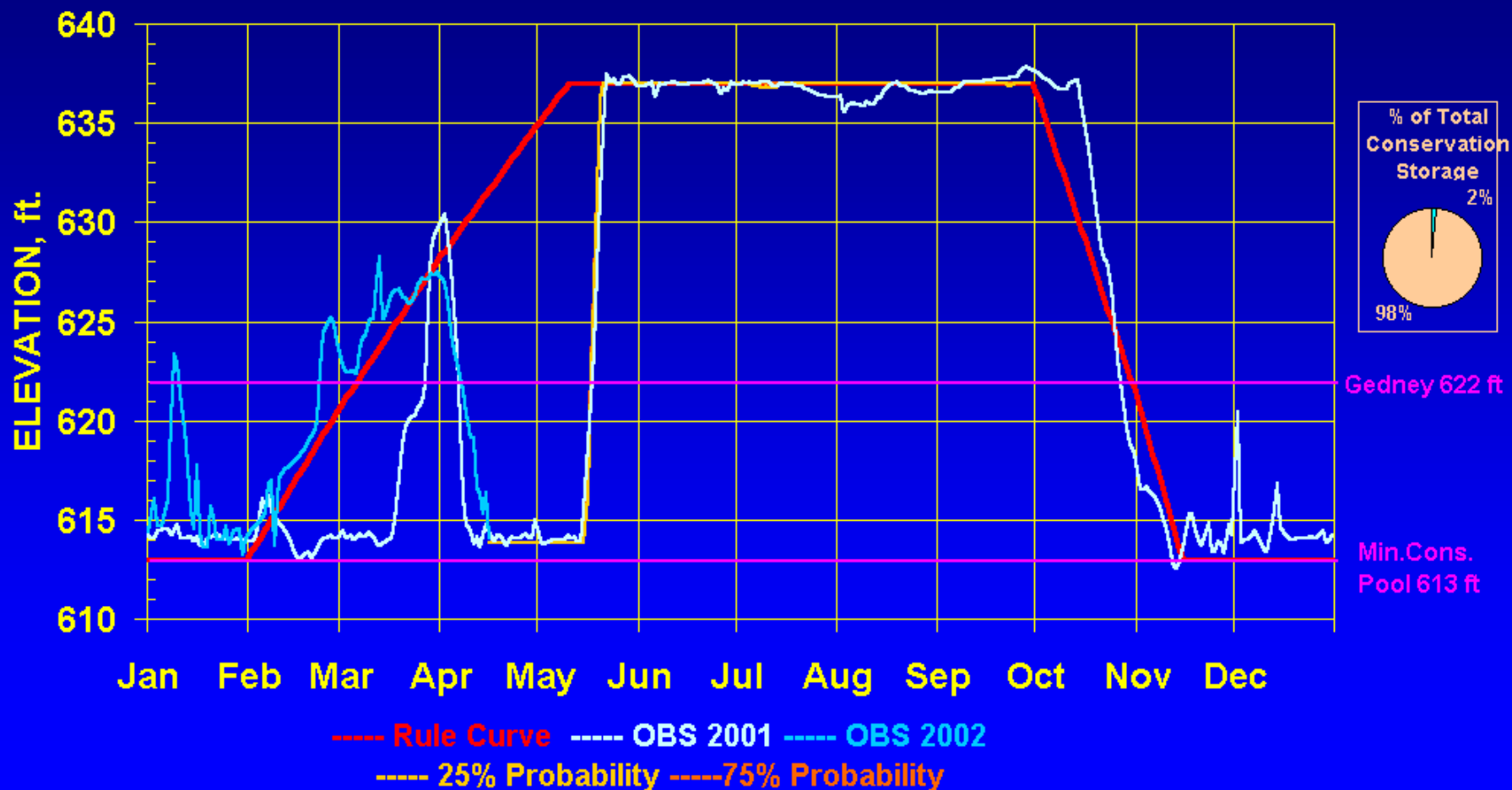


## GREEN PETER Lake Elevation Forecast Summary for 2002



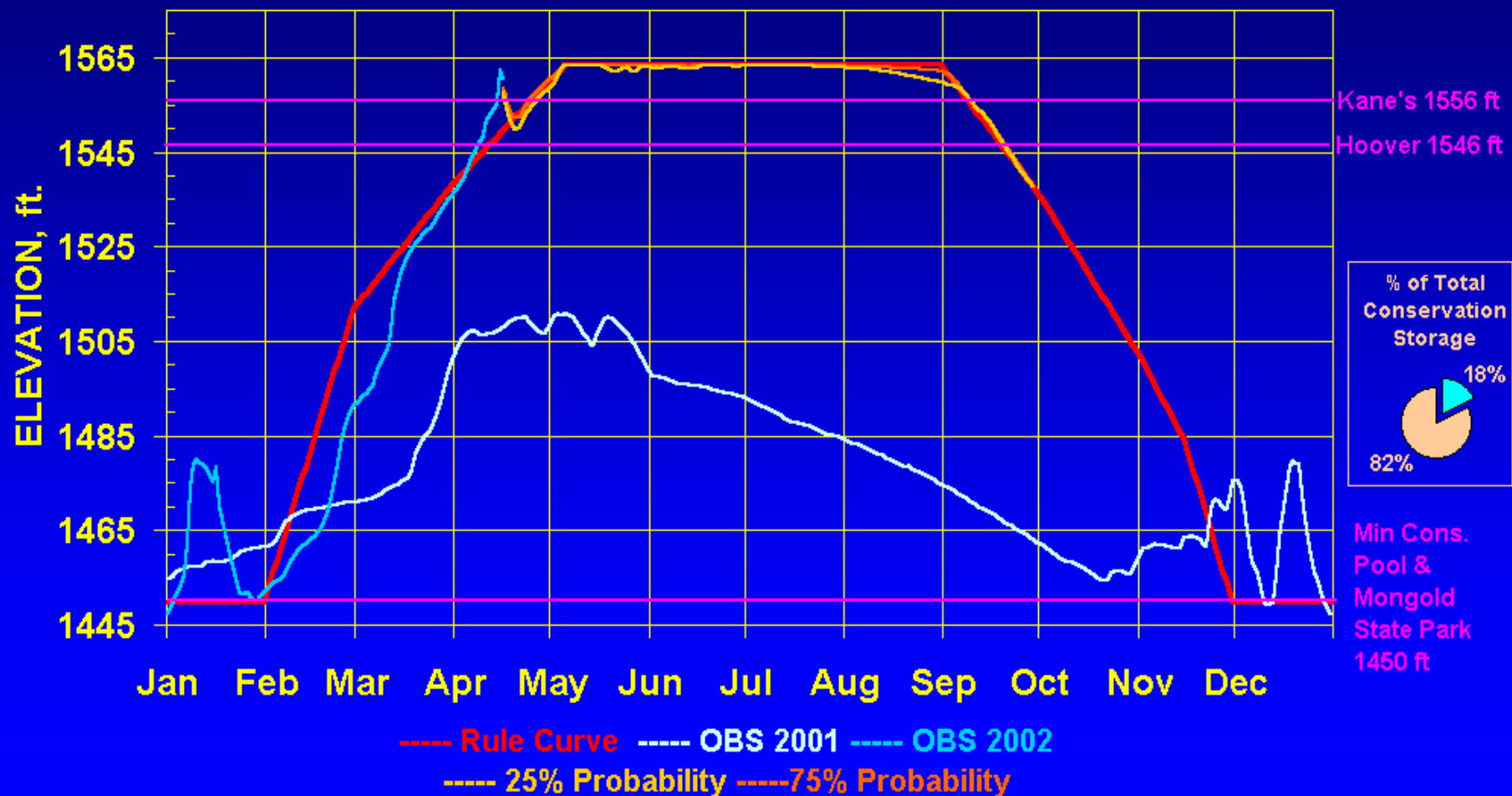


## FOSTER Lake Elevation Forecast Summary for 2002





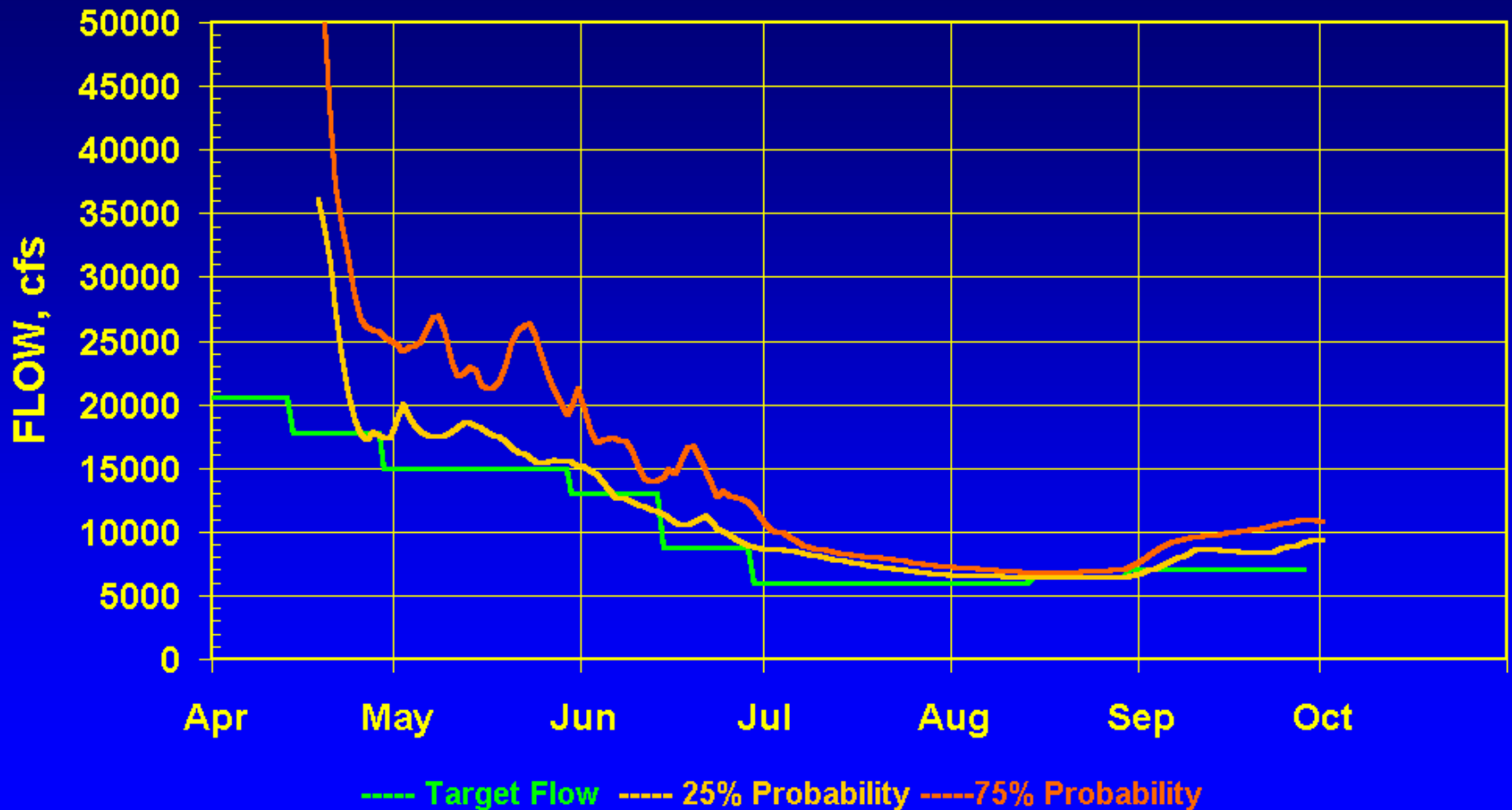
## DETROIT Lake Elevation Forecast Summary for 2002





# *Forecasting Flows for the Coming Months:*

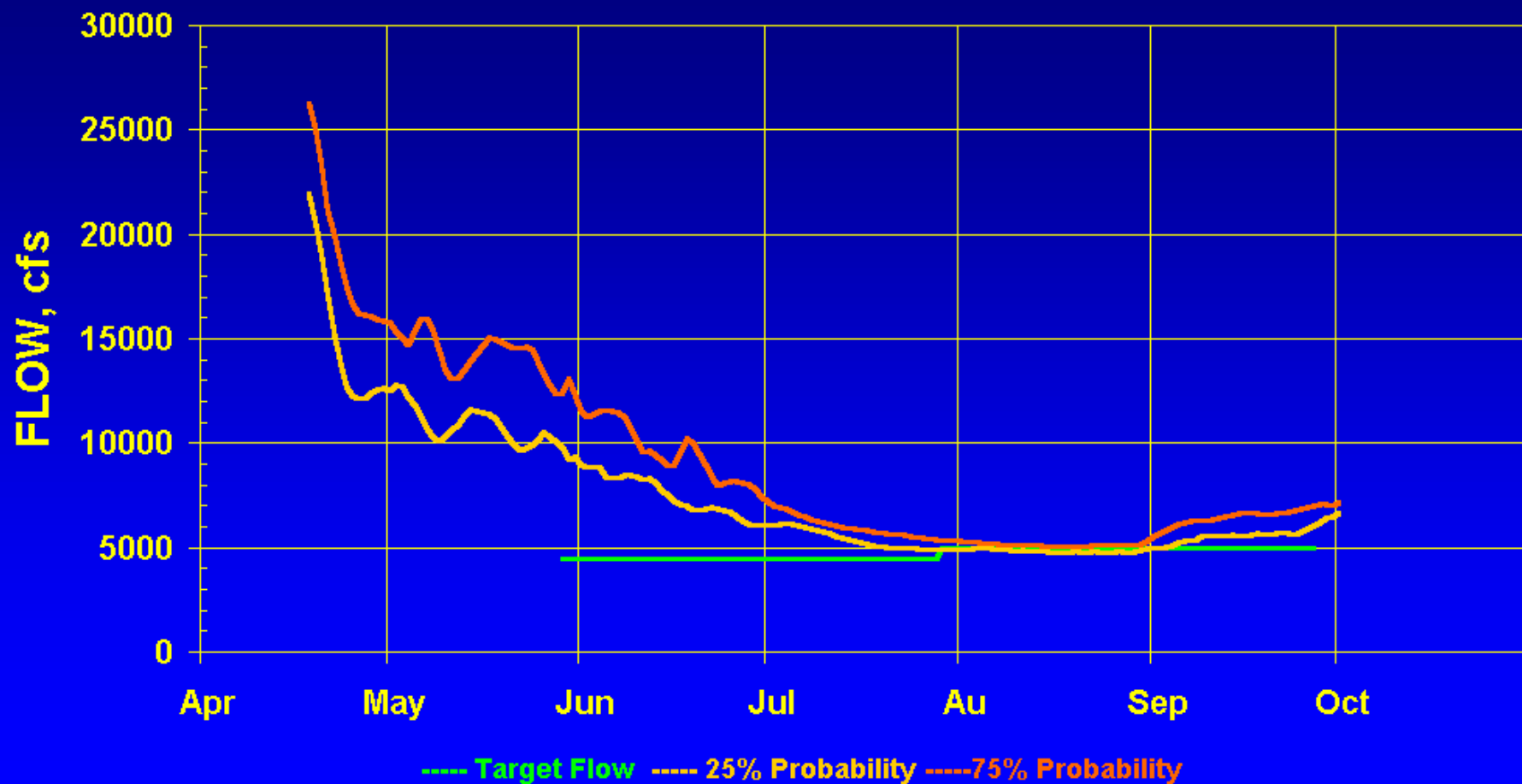
**WILLAMETTE RIVER AT SALEM**  
**Forecast Summary Hydrograph for 2002**







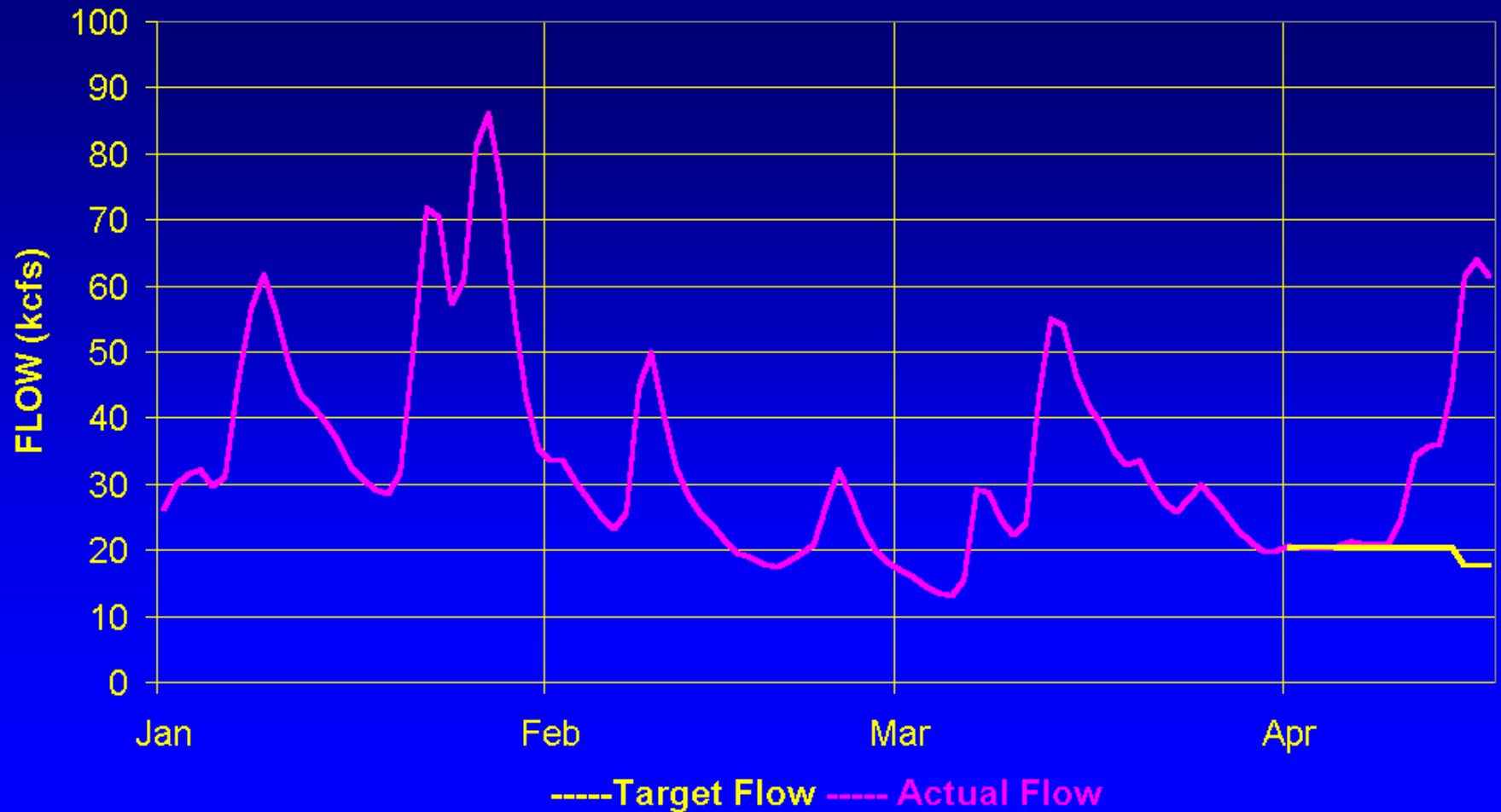
## WILLAMETTE RIVER AT ALBANY Forecast Summary Hydrograph for 2002





## *Flows at Salem this year*

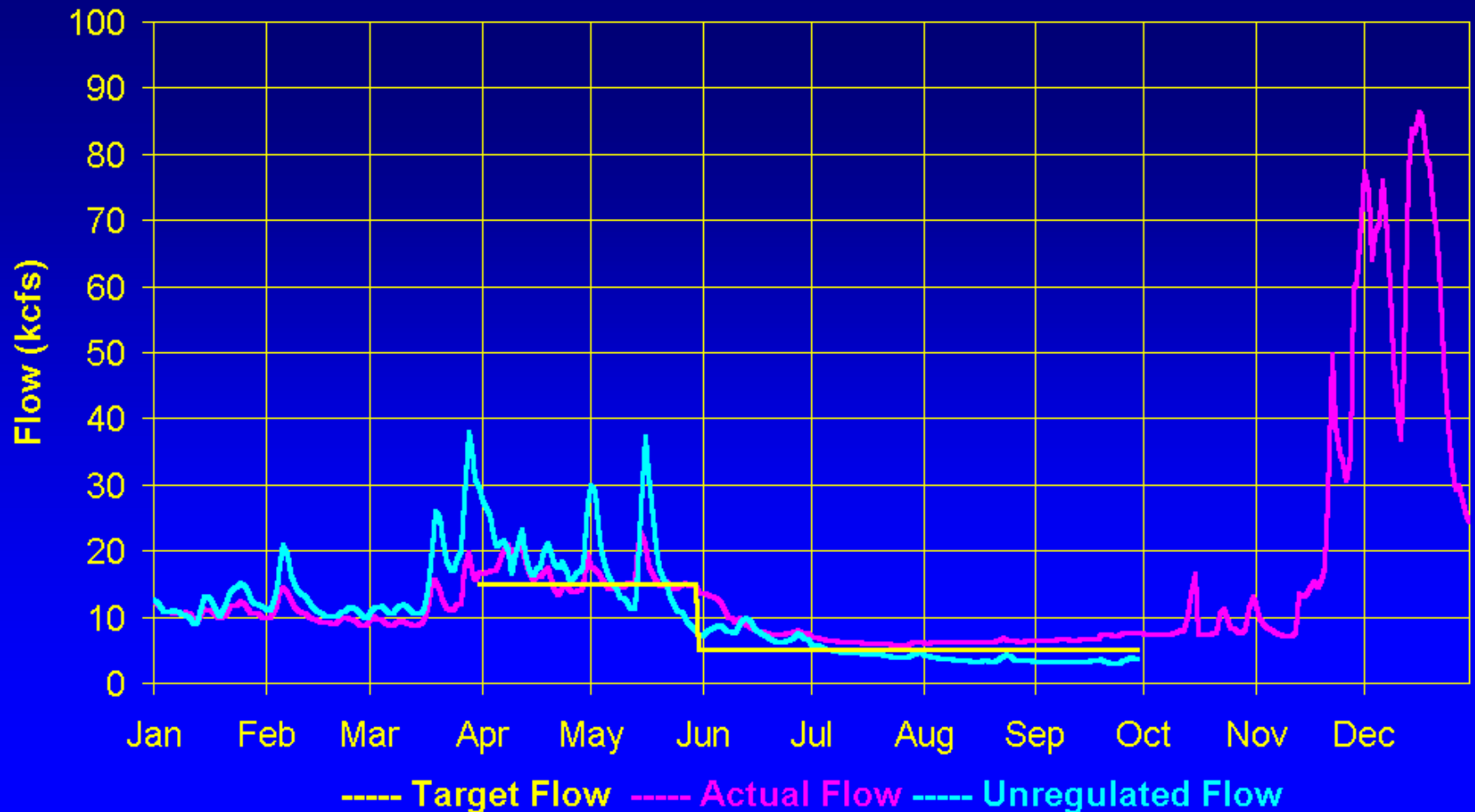
**SALEM FLOW 2002**





## *Flows at Salem last year*

**SALEM FLOW 2001**





# Comparison of 2001 Forecast to Actual Operation at Detroit Reservoir

## DETROIT Lake Elevation May Forecast Summary Hydrograph



AS OF: 11/07/01



# *Questions, Comments, Discussion*



***For more information:  
[http://www.  
nwd-wc.usace.army.mil/nwp/](http://www.nwd-wc.usace.army.mil/nwp/)***



US Army Corps  
of Engineers  
Portland District

Reservoir Regulation  
& Water Quality Section

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This is the home page for the U.S. Army Corps of Engineers' Portland District Reservoir Regulation & Water Quality Section. This office is responsible for monitoring and regulating the Willow Creek and Rogue Basins.

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## NEWS

**New**

**Presentation** about the Willamette River Low Water Situation.